

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-94 (cancelled)

Claim 95 (currently amended): A stent for holding open a blood vessel formed of a structure consisting essentially of a plurality of triangular cells, each triangular cell comprising:

 a first loop containing section, the first loop containing section arranged generally in the circumferential direction,

 a second loop containing section, the second loop containing section arranged generally in the circumferential direction and joined to the first loop containing section at a first junction; and

 a third loop containing section joined to the first loop containing section at a second junction and joined to the second loop containing section at a third junction; wherein a plurality of first loop containing sections form a first band of loops which repeat at a first frequency and a plurality of second and third loop containing sections form a second band of loops which repeat at a second frequency, said first and second bands alternating along the longitudinal axis of the stent wherein each triangular cell is formed of two loops at the first frequency and three loops at the second frequency, ~~and said first, second and third loop containing section having legs.~~

Claim 96 (previously presented): A stent according to claim 95, wherein the first loop containing section is relatively adapted to enable radial support, and the second and third loop containing sections are relatively adapted to enable longitudinal flexibility.

Claim 97 (previously presented): A stent according to claims 95 or 96, wherein the first loop containing section has wider legs than the second and third loop containing sections.

Claim 98 (previously presented): A stent according to claim 95, wherein the first frequency is lower than the second frequency.

Claim 99 (previously presented): A stent according to claim 95, wherein the first loop containing section has one free loop.

Claim 100 (previously presented): A stent according to claim 95, wherein the stent comprises nitinol.

Claim 101 (previously presented): A stent according to claim 95, wherein the stent is made of stainless steel.

Claim 102 (previously presented): A stent according to claims 95 or 96, wherein each cell in the stent encompasses the same area.

Claim 103 (previously presented): A stent according to claims 95 or 96, wherein the cell is arranged so that when expanded a length of the cell along a circumference of the stent is longer than a length of a cell along the longitudinal axis of the stent.

Claim 104 (withdrawn): A stent for widening a vessel in the human body comprising:
a plurality of first meander patterns comprising even first meander patterns and odd first meander patterns which are 180° out of phase with each other;
a plurality of second meander patterns intertwined with the first meanders containing a plurality of horizontally-oriented loops;
wherein at least one of said loops is disposed between all neighboring first meander patterns.

Claim 105 (withdrawn): The stent according to claim 104 wherein the meander patterns form uniformly distributed cells along the length of the stent.

Claim 106 (withdrawn): The stent according to claim 105 wherein the cells are triangular cells.

Claim 107 (withdrawn): A stent according to claim 106, wherein each of the triangular cells is comprised of a first loop containing section, a second loop containing section, and a third loop containing section.

Claim 108 (withdrawn): A stent according to claim 107, wherein the first loop containing section is formed by a portion of a first meander pattern and the second and third loop containing sections are formed by portions of one or more second meander patterns.

Claim 109 (withdrawn): A stent according to claim 107, wherein the first loop containing section has wider legs than the second and third loop containing sections.

Claim 110 (withdrawn): A stent according to claim 104, wherein the first meander pattern has three loops per cell.

Claim 111 (withdrawn): A stent according to claim 104, wherein the second meander patterns comprise four loops per cell.

Claim 112 (withdrawn): A stent according to claim 104, wherein the first and second meander patterns have center lines that are substantially orthogonal.

Claim 113 (withdrawn): A stent according to claim 107, wherein the second and third loop containing sections each have two loops.

Claim 114 (withdrawn): A stent according to claim 107, wherein the loops of the second and third loop containing sections are adapted to compensate for the tendency of the loops of the first loop containing section to foreshorten when the stent is expanded.

Claim 115 (withdrawn): A multicellular stent for holding open a lumen, comprising:

a plurality of even and odd vertical meander patterns, the odd vertical meander patterns being located between every two even vertical meander patterns and being out of phase with the even vertical meander patterns,

a plurality of even and odd horizontal meander patterns, the odd horizontal meander patterns being located between every two even horizontal meander patterns,

the vertical meander patterns are intertwined with the horizontal meander patterns to form a structure consisting of plurality of triangular cells, each of said triangular cells having at least one loop containing section arranged generally in the circumferential direction.

Claim 116 (withdrawn): A multicellular stent according to claim 115, wherein the triangular cells are formed by a first loop containing section, a second loop containing section connected to the first loop containing section, and a third loop containing section connected to the first and second loop containing section.

Claim 117 (withdrawn): A multicellular stent according to claim 116, wherein the first loop containing section is formed from a portion of a vertical meander pattern.

Claim 118 (withdrawn): A multicellular stent according to claim 117, wherein the second and third loop containing sections are formed from portions of one or more horizontal meander patterns.

Claim 119 (withdrawn): A multicellular stent according to claim 118, wherein members forming the first loop containing section have wider legs than members forming the second and third loop containing sections.

Claim 120 (withdrawn): A multicellular stent according to claim 115, wherein the stent is made of stainless steel.

Claim 121 (withdrawn): A multicellular stent according to claim 115, wherein the stent is made of nitinol.

Claim 122 (withdrawn): A multicellular stent according to claim 117, wherein the first loop containing section includes one free loop.

Claim 123 (withdrawn): A multicellular stent according to claim 115, wherein each triangular cell of the stent encompasses about the same area.

Claim 124 (withdrawn): A multicellular stent according to claim 122 wherein the width of members forming the second loop containing section and the width of members forming the third loop containing section are the same.

Claim 125 (previously presented): A uniformly flexible expandable stent comprising a plurality of enclosed flexible spaces, each of the plurality of enclosed flexible spaces consisting essentially of a plurality of triangular cells, each triangular cell including:

a) a first member having a first end and a second end;
b) a second member having a first end and a second end;
c) a third member having a first end and a second end;
d) a fourth member having a first end and a second end; the first end of the first member

communicating with the first end of the second member, the second end of the second member communicating with the second end of the third member, and the first end of the third member communicating with the first end of the fourth member;

e) the first member and the second member with the curved portion at their ends forming a first loop;

f) the third member and the fourth member with the curved portion at their ends forming a second loop;

g) a fifth member having a first end and a second end;
h) a sixth member having a first end and a second end;
i) a seventh member having a first end and a second end;
j) an eighth member having a first end and a second end;
k) a ninth member having a first end and a second end; and
l) a tenth member having a first end and a second end, the first end of the fifth member coupled to the second end of the first member, the second end of the

fifth member communicating with the second end of the sixth member, the first end of the sixth member communicating with the first end of the seventh member, the second end of the seventh member communicating with the second end of the eighth member, the first end of the eighth member communicating with the first end of the ninth member, the second end of the ninth member communicating with the second end of the tenth member, and the first end of the tenth member coupled to the second end of the fourth member;

- m) the fifth member and the sixth member with the curved portion at their ends forming a third loop;
- n) the seventh member and the eighth member with the curved portion at their ends forming a fourth loop; and
- o) the ninth member and the tenth member with the curved portion at their ends forming a fifth loop, such that the first and the fourth members are joined together through the fifth, the sixth, the seventh, the eighth, the ninth and the tenth members without connection directly between first and fourth members.

Claim 126 (previously presented): The stent of claim 125, wherein the first member, the third member, the sixth member, the eighth member, and the tenth member have substantially the same angular orientation to the longitudinal axis of the stent and the second member, the fourth member, the fifth member, the seventh member, and the ninth member have substantially the same angular orientation to the longitudinal axis of the stent.

Claim 127 (previously presented): The stent of claim 125, wherein at least one of the members in at least one of the plurality of spaces has a length that is greater than the length of the other members in that space.

Claim 128 (previously presented): The stent of claim 125, wherein at least one of the first, second, third, and fourth members in at least one of the plurality of spaces has a length that is longer than the length of at least one of the fifth, sixth, seventh, eighth, ninth, and tenth members in that space.

Claim 129 (previously presented): The stent of claim 128, wherein at least one of the first, second, third, and fourth members in at least one of the plurality of spaces has a length that is about twice the length of at least one of the fifth, sixth, seventh, eighth, ninth, and tenth members in that space.

Claim 130 (previously presented): The stent of claim 125, wherein at least one of the first, second, third and fourth members in at least one of the plurality of spaces has a length that is substantially equal to the length of at least one of the fifth, sixth, seventh, eighth, ninth, and tenth members in that space.

Claim 131 (previously presented): The stent of claim 125, wherein the first, second, third, and fourth members in at least one of the plurality of spaces have a width that is different than the width of the fifth, sixth, seventh, eighth, ninth, and tenth members in that space.

Claim 132 (previously presented): The stent of claim 131, wherein the first, second, third, and fourth members in at least one of the plurality of spaces have a width that is greater than the width of the fifth, sixth, seventh, eighth, ninth, and tenth members in that space.

Claim 133 (previously presented): The stent of claim 125, wherein at least one member in at least one of the plurality of spaces has a width that is greater than the other members in that space.

Claim 134 (previously presented): The stent of claim 127, wherein at least the member having the greatest length in the space is joined to an adjacent member which extends in an adjacent space.

Claim 135 (previously presented): The stent of claim 125, wherein a substantial portion of each of the members is substantially straight.

Claim 136 (previously presented): The stent of claim 125, wherein the members are comprised of metal.

Claim 137 (previously presented): The stent of claim 136, wherein the metal is selected from the group consisting of stainless steel and nitinol.

Claim 138 (previously presented): The stent of claim 125, wherein the first, second, third, and fourth members and the fifth, sixth, seventh, eighth, ninth, and tenth members are provided with different flexibilities with respect to each other.

Claim 139 (previously presented): The stent of claim 138, wherein the first, second, third, and fourth members are more flexible than the fifth, sixth, seventh, eighth, ninth, and tenth members.

Claim 140 (previously presented): The stent of claims 138, wherein the fifth, sixth, seventh, eighth, ninth, and tenth members are more flexible than the first, second, third, and fourth members.

Claim 141 (previously presented): The stent of claim 125, wherein at least one portion of at least one of the first, second, third, and fourth members and at least one portion of at least one of the fifth, sixth, seventh, eighth, ninth, and tenth members are provided with different flexibilities with respect to each other.

Claim 142 (previously presented): The stent of claim 141, wherein at least one portion of at least one of the first, second, third, and fourth members is provided with at least one portion that is more flexible than at least one portion of at least one of the fifth, sixth, seventh, eighth, ninth, and tenth members.

Claim 143 (previously presented): The stent of claim 141, wherein at least one portion of at least one of the fifth, sixth, seventh, eighth, ninth, and tenth members is provided with at least one portion that is more flexible than at least one portion of at least one of the first, second, third, and fourth members .

Claim 144 (previously presented): The stent of claim 125, wherein the first, second, third, and fourth members and the fifth, sixth, seventh, eighth, ninth, and tenth members are provided with different resistances to radial compression with respect to each other.

Claim 145 (previously presented): The stent of claim 144, wherein the first, second, third, and fourth members have a greater resistance to radial compression than the fifth, sixth, seventh, eighth, ninth, and tenth members.

Claim 146 (previously presented): The stent of claims 144, wherein the fifth, sixth, seventh, eighth, ninth, and tenth members have a greater resistance to radial compression than the first, second, third, and fourth members.

Claim 147 (previously presented): The stent of claim 125, wherein at least one portion of at least one of the first, second, third, and fourth members and at least one portion of at least one of the fifth, sixth, seventh, eighth, ninth, and tenth members are provided with different resistances to radial compression with respect to each other.

Claim 148 (previously presented): The stent of claim 147, wherein at least one portion of at least one of the plurality of the first, second, third, and fourth members is provided with at least one portion that has a greater resistance to radial compression than at least one portion of at least one of the fifth, sixth, seventh, eighth, ninth, and tenth members.

Claim 149 (previously presented): The stent of claim 147, wherein at least one portion of at least one of the fifth, sixth, seventh, eighth, ninth, and tenth members is provided with at least one portion that has a greater resistance to radial compression than at least one portion of at least one of the first, second, third and fourth members.

Claim 150 (currently amended): A stent having a distal and a proximal end for holding open a blood vessel formed of a structure consisting essentially of a plurality of triangular cells, each triangular cell comprising:

a first loop containing section, the first loop containing section arranged generally in the circumferential direction, the loops in said first loop containing section occurring at a first frequency;

a second loop containing section, the second loop containing section arranged generally in the circumferential direction, the loops in said second loop containing section occurring at a second frequency; and

a third loop containing section, the loops in said third loop containing section also occurring at a second frequency that is higher than said first frequency, said third loop containing section joined to said first and second loop containing sections such that a plurality of first loop containing sections are joined together through the second and third loop containing sections without connection directly between the first loop containing sections,

wherein said distal end of said stent consists essentially of a plurality of circumferentially continuous first loop containing sections and said proximal end of said stent consists essentially of a plurality of circumferentially continuous first loop containing sections.

Claim 151 (previously presented): A stent according to claim 150, wherein the first loop containing section is relatively adapted to enable radial support and the second and third loop containing sections are relatively adapted to enable longitudinal flexibility.

Claim 152 (previously presented): A stent according to claim 150, wherein the first loop containing sections have wider legs than the second and third loop containing sections.

Claim 153 (previously presented): A stent according to claim 150, wherein the first loop containing section has two loops for every three loops combined of said second and third loop containing sections in each triangular cell.

Claim 154 (previously presented): A stent according to claim 153, wherein, while flexing, loops in the second and third loop containing sections have maximal strain of

the expanded stent within a blood vessel that is lower than the elastic limit of the material of the stent.

Claim 155 (previously presented): A stent according to claim 150, wherein the first loop containing sections are 180 degrees out of phase with each other along the length of the stent.

Claim 156 (previously presented): A stent according to any of claim 155, wherein the cells each include two loops of said first loop containing section and three loops of said second and third loop containing sections combined.

Claim 157 (previously presented): A stent according to claim 150, wherein the stent is made of stainless steel.

Claim 158 (previously presented): A stent according to claim 150, wherein substantially each cell in the stent encompasses the same area.

Claim 159 (previously presented): A stent according to claim 150, wherein the cell is arranged so that when expanded a length of the cell along a circumference of the stent is longer than a length of a cell along the longitudinal axis of the stent.

Claims 160-169 (cancelled)

Claim 170 (currently amended): A stent for widening a vessel in the human body comprising:

 a first curvilinear section arranged generally in the circumferential direction; a second curvilinear section arranged generally in the circumferential direction and periodically joined in the direction of the longitudinal axis of the stent to the first curvilinear section to define a triangular cell;

 the first and second curvilinear sections alternating along the longitudinal axis of the stent, each curvilinear section formed continuously without disconnection about the circumference of the stent;

the first curvilinear section [[180°]] out of phase with the next alternating first curvilinear section in the longitudinal direction of the stent; and

a junction member joining the first and second curvilinear sections in the direction of the longitudinal axis of the stent, each junction member being at least two curvilinear sections away in the longitudinal direction from a corresponding junction member of another triangular cell where the junction members share substantially the same longitudinal axis and are substantially aligned with each other forming a uniform cellular structure.

Claim 171 (previously presented): A stent according to claims 170, wherein the triangular cell is arranged, so that when the stent is expanded, a length of the triangular cell along a circumference of the stent is longer than a length of the same triangular cell along the longitudinal axis of the stent.

Claim 172 (previously presented): A stent according to claim 170, wherein each junction member is three curvilinear sections away in the longitudinal direction from a corresponding junction member of another triangular cell where the junction members share substantially the same longitudinal axis and are substantially aligned with each other forming a uniform cellular structure.

Claim 173 (previously presented): A stent according to claim 170, wherein the first curvilinear section has fewer curves within the triangular cell than the second curvilinear section.

Claim 174 (previously presented): A stent according to claim 173, wherein the first curvilinear section has at least three curves within the triangular cell and the second curvilinear section has at least five curves within the same triangular cell.

Claim 175 (previously presented): A stent according to claim 174, wherein the first curvilinear section provides radial support and the second curvilinear section provides longitudinally flexibility to the stent.

Claim 176 (previously presented): A stent according to claim 170, wherein the curves of the second curvilinear sections are adapted to compensate for the tendency of the curves of the first curvilinear sections to foreshorten when the stent is expanded.

Claim 177 (previously presented): A stent according to claim 170, wherein each triangular cell of the stent encompasses about the same area.

Claim 178 (previously presented): The stent according to claim 170, wherein the junction member between the first and second curvilinear sections is substantially straight.

Claim 179 (previously presented): The stent according to claim 170, wherein the stent is made of metal selected from the group consisting of stainless steel, nitinol, gold, and any combination thereof.

Claim 180 (previously presented): The stent of claim 170, wherein the first curvilinear section has a greater resistance to radial compression than the second curvilinear section.

Claim 181 (previously presented): A stent for holding open a blood vessel consisting essentially of a plurality of triangular cells, each triangular cell comprising:

 a first loop containing section, the first loop containing section arranged generally in the circumferential direction wherein the loops repeat at a first frequency;

 a second loop containing section joined to the first loop containing section at a first junction point, said second loop containing section wherein the loops repeat at a second frequency; and a third loop containing section joined to the first loop containing section at a second junction point and joined to the second loop containing section at a third junction point, wherein the loops repeat at a third frequency, said first loop containing section containing two loops for every three loops of the second and third loop containing sections.

Claim 182 (previously presented): A stent according to claim 181, wherein the first loop containing section includes one free loop.

Claim 183 (cancelled)

Claim 184 (currently amended): A uniformly flexible stent for holding open a blood vessel comprising:

- a. a first loop containing section, said first loop containing section arranged generally in a circumferential direction, occurring at a first amplitude;
- b. a second loop containing section, said second loop containing section arranged generally in the circumferential direction, also occurring at said first amplitude;
- c. at least one of said first and second loop containing sections formed of a single, continuous, generally sinusoidal curvilinear pattern; and
- d. a third loop containing section, said third loop containing section arranged generally in the circumferential direction, occurring at a second amplitude lower than said first amplitude, disposed in the generally circumferential space between said first and second loop containing sections and alternately joined to said first and second loop containing sections, wherein said third loop containing section comprises three loops for every two loops of said first loop containing section, said first, second and third loop containing sections forming a plurality of cells and alternating sinusoidal curvilinear patterns.

Claim 185 (previously presented): A stent according to claim 184, wherein the second loop containing section of each cell forms at least one loop facing toward the interior of the cell.

Claim 186 (previously presented): A stent according to claim 185, wherein the third loop containing section forms one loop facing toward the interior of the cell.

Claim 187 (previously presented): A stent according to claim 184, wherein the stent is made of stainless steel.

Claim 188 (previously presented): A stent according to claim 184, wherein the stent is made of Nitinol.

Claim 189-194 (cancelled)

Claim 195 (currently amended): Stent for widening a vessel in a human body comprising:

a plurality of first circumferential bands each being a basically sinusoidal curvilinear pattern of loops at a first frequency;

a plurality of second circumferential bands each being a basically sinusoidal curvilinear pattern of loops at a second frequency higher than said first frequency, consecutively alternating with said first circumferential bands and periodically coupled to the adjacent first bands to form cells;

wherein the first circumferential bands comprise[[::]] even first circumferential bands each containing a pattern of loops[[; an]], and odd first circumferential bands each containing a pattern of loops which are [[180°]] out of phase with the loops of the even first circumferential bands, an odd first circumferential band occurring between every two even first circumferential band;

wherein the second circumferential bands occur between every even first circumferential band and odd first circumferential band; and

wherein a first circumferential band occurs at each end of the stent.

Claim 196 (cancelled).

Claim 197 (new): A stent according to claim 170, wherein the curvilinear sections have a thickness, generally disposed in the circumferential direction.

Claim 198 (new): A stent according to claim 170, wherein the first and second curvilinear sections are joined together in substantially a parallel manner along the longitudinal axis of the stent.

Claim 199 (new): A stent according to claim 170, wherein the thickness within each triangular cell is substantially uniform, and the thickness of the first curvilinear section is larger than the thickness of the second curvilinear section.

Claim 200 (new): The stent according to claim 170, wherein a total length of the first curvilinear section is shorter than a total length of the second curvilinear section within the triangular cell, if the curvilinear members of each section within the triangular cell were flattened to remove the curves and formed a straight line for each section within the triangular cell.